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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|--------------------------|--|------------------|
| 10/730,433 | 12/08/2003 | Frans Lodewijk Plantenga | ACH2977 US | 2335 |
| <div>7590 02/05/2008 LOUIS A. MORRIS AKZO NOBEL INC. 7 LIVINGSTONE AVENUE DOBBS FERRY, NY 10522-3408</div> | | | <div>EXAMINER DOUGLAS, JOHN CHRISTOPHER</div> <div>ART UNIT 1797</div> <div>PAPER NUMBER</div> | |
| | | | <div>MAIL DATE 02/05/2008</div> <div>DELIVERY MODE PAPER</div> | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/730,433 | Applicant(s) PLANTENGA ET AL. | |
| | Examiner John C. Douglas | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Examiner acknowledges the response filed on 11/09/2007 containing remarks and amendments to the claims. The rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (US 6086749) in view of Schindler (US 4414141).
2. With respect to claims 1 and 3, Kramer discloses a process for the hydroconversion of a hydrocarbon feed in the presence of a catalyst mixture of two catalysts that each contain Groups VIB and VIII metals on a porous inorganic support where at least 75% of the total pore volume are in pores of between about 20 to about 30 nm and less than 10% of the total pore volume is in pores within the range of 0 to 10 nm, the catalyst having a surface area ranging from at least about 200 to about 600 m²/g and a pore volume ranging from about 0.8 to about 3.0 cc/g and Kramer discloses that the difference between the densities in the first and second catalyst can be +/-10 wt% (see Kramer, claim 1, column 32, lines 25-29, and column 32, line 66-column 33, line 32).

Kramer does not disclose that the second catalyst has at least %5 of the pore volume in pores with a diameter of at least 100 nm.

However, Schindler discloses a catalyst that has 0.25 cc/g out of 1.20 cc/g in pores with a diameter greater than 150 nm (see Schindler, column 1, Table).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Kramer to include a catalyst that has 0.25 cc/g out of 1.20 cc/g in pores with a diameter greater than 150 nm in order to improve hydrotreating activity and catalyst life.

Also, it would have been obvious for the first catalyst to inhibit sediment formation and promote asphaltene removal and for the second catalyst to provide catalytic activity and inhibit sediment formation because such characteristics would flow naturally from the prior art catalyst disclosed (see MPEP 2145 II., citing *Ex parte Obiaya*).

3. With respect to claim 2, Kramer discloses that the catalyst base may be alumina (see Kramer, column 29, lines 17-18).

4. With respect to claim 4, Kramer discloses where the catalysts comprise about 5 to about 50 wt% of molybdenum oxide and about 1 to about 12 wt% of nickel or cobalt oxide (see Kramer, column 32, lines 16-24).

5. With respect to claim 6, Kramer, discloses that the catalyst bed is an ebullated bed configuration (see Kramer, column 23, lines 6-13).

6. With respect to claims 7 and 9, Kramer discloses a catalyst mixture of two catalysts that each contain Groups VIB and VIII metals on a porous inorganic support where at least 75% of the total pore volume are in pores of between about 20 to about 30 nm and less than 10% of the total pore volume is in pores within the range of 0 to 10 nm, the catalyst having a surface area ranging from at least about 200 to about 600 m²/g and a pore volume ranging from about 0.8 to about 3.0 cc/g and Kramer

discloses that the difference between the densities in the first and second catalyst can be +/-10 wt% (see Kramer, claim 1, column 32, lines 25-29, and column 32, line 66-column 33, line 32).

Kramer does not disclose that the second catalyst has at least %5 of the pore volume in pores with a diameter of at least 100 nm.

However, Schindler discloses a catalyst that has 0.25 cc/g out of 1.20 cc/g in pores with a diameter greater than 150 nm (see Schindler, column 1, Table).

Schindler discloses that such a catalyst has improved hydrotreating activity and improved catalyst life (see Schindler, column 1, lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the catalysts of Kramer to include a catalyst that has 0.25 cc/g out of 1.20 cc/g in pores with a diameter greater than 150 nm in order to improve hydrotreating activity and catalyst life.

Also, it would have been obvious for the first catalyst to inhibit sediment formation and promote asphaltene removal and for the second catalyst to provide catalytic activity and inhibit sediment formation because such characteristics would flow naturally from the prior art catalyst disclosed (see MPEP 2145 II., citing *Ex parte Obiaya*).

7. With respect to claim 8, Kramer discloses that the catalyst base may be alumina (see Kramer, column 29, lines 17-18).

8. With respect to claim 10, Kramer discloses where the catalysts comprise about 5 to about 50 wt% of molybdenum oxide and about 1 to about 12 wt% of nickel or cobalt oxide (see Kramer, column 32, lines 16-24).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer in view of Schindler as applied to claim 1 above, and further in view of Riley (US 4069139). Kramer discloses where the feed is a heavy hydrocarbon that has at least 50 % boiling above about 510 degrees C (see Kramer, column 25, lines 4-9), but Kramer does not disclose that the feed comprises at least 2 wt% sulfur and at least 5 wt% of Conradson Carbon.

However, Riley discloses a heavy hydrocarbon feed that contains 8 wt% of sulfur and a Conradson carbon content of from about 5 to about 50 wt% (see Riley, column 3, lines 20-38).

Riley discloses that heavy hydrocarbon feeds usually contain large amounts of sulfur and a Conradson carbon content of from about 5 to about 50 wt% (see Riley, column 3, lines 31-38).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Kramer in view of Schindler to include a heavy hydrocarbon feed that contains 8 wt% of sulfur and a Conradson carbon content of from about 5 to about 50 wt% because such amounts of sulfur and Conradson carbon are usually found in heavy hydrocarbons.

Response to Arguments

Applicant first argues that neither Kramer nor Schindler discloses the limitation that less than 25% of the total pore volume is in pores having a diameter of 10nm or less. However, Kramer discloses a catalyst mixture of two catalysts that each contain Groups VIB and VIII metals on a porous inorganic support where at least 75% of the total pore volume are in pores of between about 20 to about 30 nm and less than 10% of the total pore volume is in pores within the range of 0 to 10 nm (See Kramer, column 32, line 66-column 33, line 32).

Applicant next argues that neither Kramer nor Schindler discloses the limitation that catalyst I has a larger percentage of its pore volume in pores with a diameter of at least 20 nm than catalyst II. However, Schindler discloses a catalyst that has 0.25 cc/g out of 1.20 cc/g in pores with a diameter greater than 150 nm (see Schindler, column 1, Table).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JCD

1/24/2007



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